DERWENT-ACC-NO: 2001-518977

DERWENT-WEEK: 200157

TITLE: Fabrication of capacitor of a semiconductor device involves using pentakis ethyl methyl amido tantalum, pentakis dimethyl amido tantalum or pentakis diethyl amido tantalum as a source material for high dielectric tantalum oxynitride layer

INVENTOR: JI, Y H; SHIN, D U

PATENT-ASSIGNEE: HYNIX SEMICONDUCTOR INC[HYNIN]

PRIORITY-DATA: 1999KR-0026378 (July 1, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
KR 2001008502 A	February 5, 2001	N/A	001	H01L 027/108

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
KR2001008502A	N/A	1999KR-0026378	July 1, 1999

INT-CL (IPC): H01L027/108

ABSTRACTED-PUB-NO: KR2001008502A

BASIC-ABSTRACT:

NOVELTY - A method for manufacturing a capacitor of semiconductor device is provided to repress oxidation generated in an interface of a high dielectric TaON layer and an upper electrode by using PEMAT (Pentakis Ethyl Methyl Amido
Tantalum), PDMAT (Pentakis Di Methyl Amido Tantalum) and PDEAT (Pentakis Di

Ethyl Amido Tantalum) as a source material and by nitrifying each layer for high density.

DETAILED DESCRIPTION - A lower electrode (30) is formed through a contact hole
on a substrate. A high dielectric TaON layer (32) is deposited on the lower electrode (30) using one of PEMAT, PDEAT or PDMAT as a source which is a metal-organic material. A TaN thin layer is deposited on the TaON layer (32) using the same metal-organic material used above to form an upper electrode (34).

The metal-organic PEMAT, PDEAT or PDMAT is composed of carbons having weak
bonding strength in it. So, the source dissolves at a low temperature under 400 deg. C and the deposition is carried out. Before forming a doped polysilicon layer, the upper electrode TaN is deposited, and a plasma processing using N2 and H2 is carried out to densify the thin film and to remove defects simultaneously.

USE - Manufacturing a capacitor of semiconductor device.

ADVANTAGE - Oxidation generated in an interface of a high dielectric TaON layer
and an upper electrode is suppressed.

CHOSEN-DRAWING: Dwg.1/10

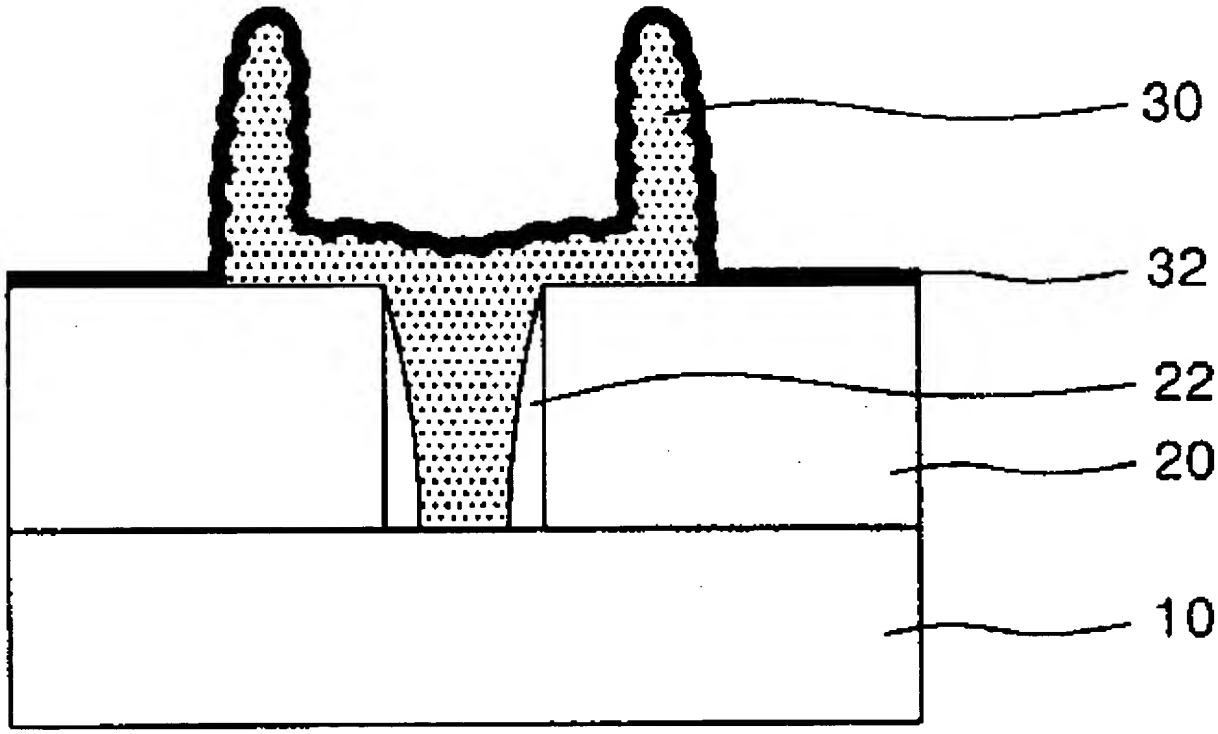
TITLE-TERMS: FABRICATE CAPACITOR SEMICONDUCTOR DEVICE ETHYL METHYL AMIDO
TANTALUM AMIDO TANTALUM AMIDO TANTALUM SOURCE MATERIAL HIGH
DIELECTRIC TANTALUM OXYNITRIDE LAYER

DERWENT-CLASS: L03 U13 U14

CPI-CODES: L04-C11C; L04-C12; L04-C14A;

EPI-CODES: U13-C04B1A; U14-A03B4;

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C2001-155264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